

Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) 2020–2025 Roadside Observational Study

Technical Appendix for Dhaka North Round Five

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The Johns Hopkins International Injury Research Unit partnered with the Centre for Injury Prevention and Research, Bangladesh (CIPRB) to conduct roadside observations in Round five (September 2023). The methods for these findings were developed by the Johns Hopkins International Injury Research Unit and implemented in collaboration with the CIPRB. This report provides results from observational surveys that represent population-level (citywide) prevalence of important road safety risk factor, speed in Round five. For speed, there were approximately 60,751 observations

Observation sites were selected to obtain a representative sample of vehicles and road users in each city, conditional on the safety of observers. There were 15 observation sites per risk factor, and a standardized protocol was used with vehicles selected for observation in a systematic quasi-random fixed sequence. Observations were performed between 06:30 a.m. and 07:00 p.m. on both weekend days and weekdays. The methods were designed to estimate citywide prevalence and cannot provide insights into interventions conducted in specific locations in the city.

This technical appendix was created on October 30th, 2023 by the Johns Hopkins International Injury Research Unit using the following files:

- BIGRS3_GAR tech appendix_231030.do
- R5_DhakaNorth_BIGRS3 speed.dta

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1. Speeding

Key findings

- Overall, 8% of the vehicles were observed to be driving above the posted speed limit.
- When disaggregated by vehicle type, heavy vehicles were by far the leading type of vehicle exceeding the speed limit (25%), compared to light vehicles (6%) and motorcycles (3%).
- Minibuses/minivans (28%) and buses (25%) were among the leading types of vehicles exceeding the speed limit.
- About 42% of vehicles on collector/local roads were traveling above the recommended speed of 30 km/h.
- When disaggregated by vehicle ownership type, commercial vehicles had the highest prevalence of speeding (15%).

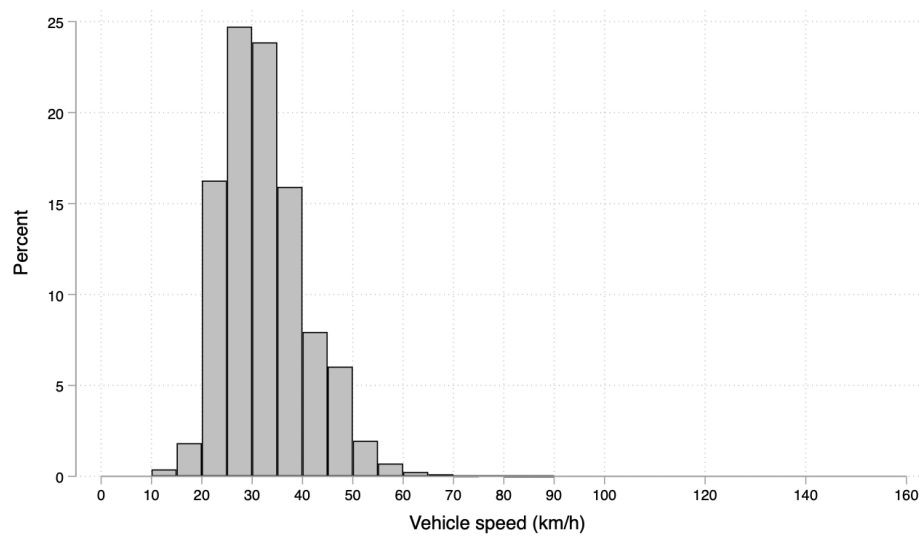
1.1. Total number of observed vehicles

60,751

1.2. Prevalence of exceeding the posted speed limit and summary measures of speed among all vehicles

N	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
60,654	8	32	8	31	41

1.3. Histogram of speed among all vehicles



1.4. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle type

Vehicle type	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Sedans/Saloons	16,193	3	33	9	32	43
Pickup/Light trucks	3,339	12	31	7	30	39
Truck/Large trucks	7	57	32	5	33	38
Buses	6,241	25	30	7	28	37
Minibuses/Minivans	2,284	28	33	8	32	43
SUVs	3,529	3	33	9	32	44
Three-wheelers	15,362	8	30	6	30	37
Motorcycles	13,698	3	34	10	32	46
Other	1	0	42	.	42	42

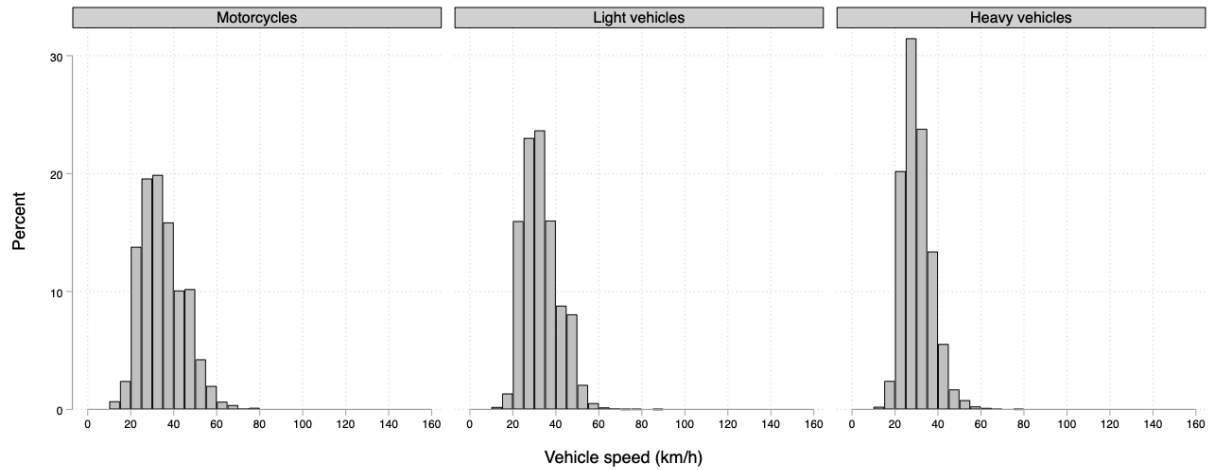
1.5. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle type group

Vehicle type group	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Motorcycles	13,698	3	34	10	32	46
Light vehicles*	25,345	6	33	8	32	42
Heavy vehicles†	6,248	25	30	7	28	37

* Light vehicles include sedans/saloons/SUVs/4WDs, minibuses/minivans, and pickup/light trucks.

† Heavy vehicles include buses and trucks/large trucks.

1.6. Histogram of speed by vehicle type group



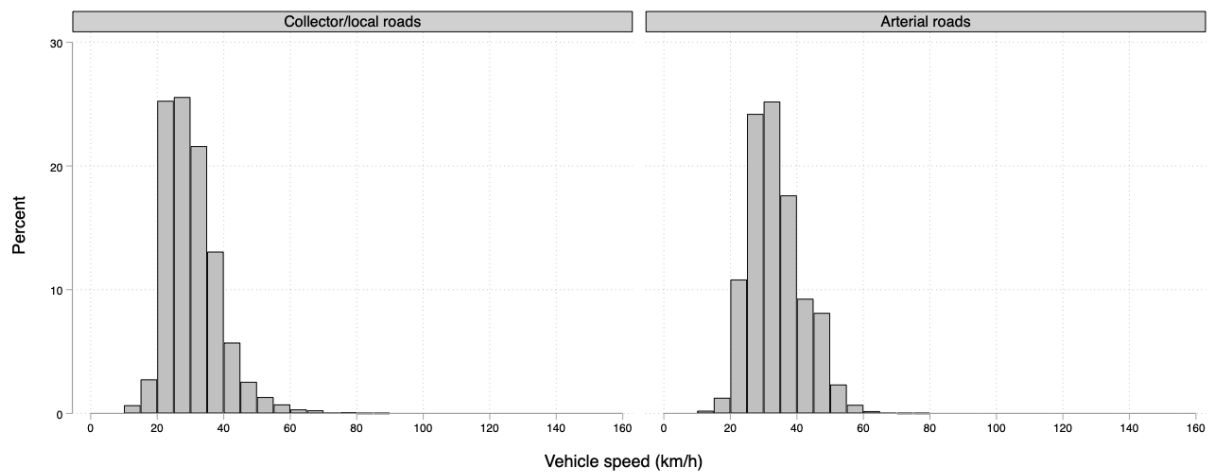
1.7. Prevalence of exceeding the posted speed limit and summary measures of speed by road type

Road type	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Collector/local	22,749	7	30	8	29	38
Arterial	37,905	8	33	8	32	42

1.8. Prevalence of traveling faster than 30 km/h in collector/local roads and 50 km/h in arterial roads

	n	Prevalence (%)
> 30 km/h in collector/local	22,845	42
> 50 km/h in arterial	37,906	3

1.9. Histogram of speed by road type



Graphs by Road type

1.10. Prevalence of exceeding the posted speed limit by extent of excess and summary measures of speed by speed limit

Speed limit (km/h)	n	Prev. of speed > limit (%)	Prev. of speed > limit + 10 km/h (%)	Prev. of speed > limit + 20 km/h (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
30	6,972	34	0	0	29	7	27	36
40	7,471	6	0	0	29	7	28	36
50	5,939	1	0	0	34	7	34	42
60	5,187	3	0	0	41	10	41	51

1.11. Prevalence of exceeding the posted speed limit by extent of excess and vehicle type

Speed limit (km/h)	n	Prev. of speed > limit (%)	Prev. of speed > limit + 10 km/h (%)	Prev. of speed > limit + 20 km/h (%)
Sedans/Saloons	16,193	3	0	0
Pickup/Light trucks	3,339	12	1	0
Truck/Large trucks	7	57	0	0
Buses	6,241	25	5	1
Minibuses/Minivans	2,284	28	5	0
SUVs	3,529	3	0	0
Three-wheelers	15,362	8	0	0
Motorcycles	13,698	3	0	0
Other	1	0	0	0

1.12. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle ownership

Vehicle ownership type	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Commercial	21,151	15	31	7	30	38
Taxi	23	4	29	7	29	37
Ride-share	105	10	38	12	36	49
Other	39,375	4	33	9	31	43

1.13. Prevalence of exceeding the posted speed limit and summary measures of speed by day of the week

Day of the week	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Monday	9,406	6	30	8	29	37
Tuesday	8,675	8	34	9	32	44
Wednesday	5,267	16	33	7	33	39
Thursday	8,196	8	34	9	32	45
Friday	11,737	10	34	8	34	43
Saturday	9,481	6	30	7	29	37
Sunday	7,892	5	29	8	27	36

1.14. Prevalence of exceeding the posted speed limit and summary measures of speed by weekday/weekend*

	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Weekday	39,436	8	32	8	31	41
Weekend	21,218	8	32	8	31	41

* The weekend is Friday and Saturday.

1.15. Prevalence of exceeding the posted speed limit and summary measures of speed by observation session start time

Session start time	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
6:30 a.m. to 9 a.m.	11,623	9	33	9	32	42
9:01 a.m. to 11 a.m.	12,510	8	32	8	30	40
11:01 a.m. to 2 p.m.	12,406	9	32	8	31	41
2:01 p.m. to 4 p.m.	12,814	7	32	8	31	41
4:01 p.m. to 7 p.m.	11,301	6	32	8	30	41

The following analyses on speeding are restricted to vehicles in free flow speed, which are defined as those traveling faster than the speed limit when/where there is no impedance for drivers to speed freely, such as bad weather, a junction, tight bend, speed bump, stop sign, crosswalk, and law enforcement activities nearby.

1.16. Summary measures of speed among vehicles in free flow speed

n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
2,996	40	9	37	47

1.17. Summary measures of speed among vehicles in free flow speed by vehicle type group

Vehicle type group	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Motorcycles	431	53	11	51	66
Light vehicles*	1,019	38	6	37	44
Heavy vehicles†	1,546	37	6	35	43

* Light vehicles include sedans/saloons/SUVs/4WDs, minibuses/minivans, and pickup/light trucks.

† Heavy vehicles include buses and trucks/large trucks.

1.18. Summary measures of speed among vehicles in free flow speed by road type

Road type	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Collector/local	976	43	11	40	53
Arterial	2,018	38	7	36	44

1.19. Summary measures of speed among vehicles in free flow speed by speed limit

Speed limit (km/h)	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
30	2,339	37	5	35	42
40	451	45	4	44	49
50	67	54	4	53	58
60	137	67	5	65	73

1.20. Summary measures of speed among vehicles in free flow speed by vehicle ownership

Vehicle ownership type	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Commercial	2,128	37	5	35	42
Taxi	1	31	.	31	31
Ride-share	8	56	11	59	68
Other	857	46	11	43	61

1.21. Summary measures of speed among vehicles in free flow speed by day of the week

Day of the week	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Monday	370	44	13	40	62
Tuesday	382	38	7	36	44
Wednesday	622	38	6	36	44
Thursday	294	40	8	37	47
Friday	750	39	7	37	45
Saturday	328	39	8	37	47
Sunday	248	43	12	41	56

1.22. Summary measures of speed among vehicles in free flow speed by observation session start time

Session start time	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
6:30 a.m. to 9 a.m.	631	39	8	37	46
9:01 a.m. to 11 a.m.	601	39	8	37	47
11:01 a.m. to 2 p.m.	675	40	9	38	48
2:01 p.m. to 4 p.m.	581	40	10	37	47
4:01 p.m. to 7 p.m.	506	39	9	36	45